Bachelor Thesis

Crowdfunding a victory: success factors of humanitarian and military donation projects in the support of Ukraine

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April 2023

Riga

Abstract

Crowdfunding has become a crucial method for raising funds to support either military or humanitarian initiatives in Ukraine, in response to Russian aggression. However, little is known about the factors that determine the outcome of crowdfunding projects targeting these goals. In this paper, we aim to expand our understanding of project success by investigating the factors that influence the success of donation-based campaigns created to support Ukraine in the ongoing Russo-Ukrainian war.

We analyze several crowdfunding platforms including GoFundMe, Crowdfunder, Fundly, GlobalGiving, PeoplesProject, WeaponstoUkraine, and Biggggidea, and our sample includes 211 crowdfunding projects. To assess their success, we use financial measures such as the number of funds raised and the ratio of raised funds to the target amount.

Our findings suggest that updates regarding the project's performance are crucial for its success, as well as presence of photos that may help to achieve higher funding rates. Military projects are associated with a larger sum of funds raised; however, they are less frequent than the humanitarian campaigns. Additionally, the choice of platform influences the success of the campaign.

Qualitative analysis reveals a trend of decreasing interest in supporting Ukraine over time, although our quantitative results on this topic are inconclusive. However, most surveyees documented this trend and the fact that it is getting harder to launch a successful campaign. Based on our research, we provide suggestions on how to improve existing crowdfunding efforts to maximize the final benefit for the sake of Ukrainian victory and the support of its people. Overall, our paper contributes to the literature on the success factors of donation-based crowdfunding projects targeting military and humanitarian goals in the context of the Russo-Ukrainian war.

Keywords: crowdfunding, Russo-Ukrainian war, successful campaign, target amount, crowdfunding platforms.

Acknowledgments: We would like to express our sincere gratitude to our supervisor, Dr. Ágnes Lublóy, for her invaluable feedback, continued guidance, and unwavering support throughout the thesis writing process.

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1. Introduction

The year of 2022 brought quite a few unexpected events into our everyday lives with the war in Ukraine being the most prominent one, haunting the minds of millions with its rigidity and breaking the destinies of not fewer people. Having awakened compassion and fear in humanity across the globe, millions of people outside Ukraine and ordinary Ukrainians are enabled with modern technologies that render new opportunities: donating money to support Ukrainian military forces as well as citizens that are in need. Clearly, such crowdfunding mechanisms significantly change the course of current events.

The unprecedented assault has put the country and its citizens under the threat of exploiting the resources to the extent that both humanitarian and military catastrophes might erupt. Since Ukraine is a relatively small country in comparison to the aggressor, the Russian Federation, it is highly dependent on external help from its political allies and the general public. For instance, the Ukrainian military budget in 2021 was approximately 6 billion USD, which is ten times less than the Russian one (Reuters, April 2022). Alongside that, the US has already provided Ukraine with 20 billion USD in total as the largest financial package since February (US Department of Defence, October 2022). Fortunately, several charities rushed to provide aid through fundraising activities, dispersing help for refugees as well as promoting campaigns for military and humanitarian support, which undoubtedly shapes the positive outcome. The Ukrainian government has even launched an official website called United24 to raise funds for the country's defense, reconstruction, and humanitarian aid for the affected civil population. As a result, donors transfer financial support to the account of the National Bank of Ukraine in a variety of ways including PayPal, cryptocurrency, and direct bank transfers. The total amount of money collected as of November 15, 2022, amounts to 222 602 201 USD, out of which 31 445 107 USD has been left for future corresponding expenses while the rest is spent mostly on humanitarian/ medical aid and demining. Considering that Ukrainians have raised over 600 million UAH (16 million USD) in three days to purchase four Bayraktar drones (Ukrinform, June 2022), or Lithuanian citizens donated 5.4 million USD for the same combat drone (The Guardian, May 2022), it is apparent how vital crowdfunding is for the support of Ukraine in this fierce armed conflict.

However, crowdfunding has been hardly used for war purposes before - there is a gap in the practical skills on how to run this kind of project. To the best of our knowledge, there is only

one related paper in this field. Grove (2019) explored the phenomenon related to the so-called violence entrepreneurs from North America and Europe that were willing to get engaged in combat operations against the Islamic State and were crowdfunding financial resources to support their own missions (in most cases traveling abroad to participate in combat operations). Clearly, the concept of crowdfunding as a "weapon of mass participation in armed conflicts" is only emerging as a significant phenomenon worthy of public attention (Grove, 2019). Since crowdfunding has not been used previously for war purposes, its current utilization may not be at full capacity owing to the absence of experience and supportive materials. As a result, a variety of problems may occur in the process of launching a campaign, starting from systemic inefficiencies of crowdfunding platforms and ending with an unappealing design of the campaign badly affecting credibility.

Considering the aforementioned facts, the research question is: *which factors determine the successfulness of such philanthropic projects?* Based on the provided in the end answer we will as well attempt to provide recommendations on how to design crowdfunding campaigns in the most efficient way, so the maximum benefit is exploited for the Ukrainian victory.

We attempt to answer this research question with the help of the extensive dataset collected from seven crowdfunding platforms, and an econometrics toolkit consisting of OLS regressions with both continuous and factor variables. We plan to complement the regressions with a qualitative study (survey with the industry professionals) to run a proof test of our quantitative results.

2. Literature review

The main purpose of this section is to give a clear understanding of the concept and provide a glimpse into the mechanism of donation-based crowdfunding. First, we define crowdfunding itself and explore its main distinguishing features from conventional sources of funding. Then, we outline current trends in the industry and describe the main crowdfunding models. Finally, we devote special focus to one particular type of crowdfunding activity – donation-based crowdfunding.

2.1. At the origins of crowdfunding

Crowdfunding is a method of financing certain initiatives with the help of a large audience, out of which representatives donate small contributions, but with the help of collective efforts it is multiplied up to the point where it becomes possible to collect large sums of money within a limited timeframe (Hossain & Oparaocha, 2016). One of the distinguishing features of crowdfunding, contrary to traditional financial institutions, is the fact that this source of financial support is available for every kind of entrepreneur regardless of whether they are an ordinary person or an active economic agent. It is done mainly via designated platforms available on the Internet, and the whole process is happening without the intervention of standard financial intermediaries.

Three main types of agents are standing behind the process - organizers of the campaigns, or those who initiate projects for raising money, backers for the campaign, or those who donate resources for the sake of project realization, and finally intermediaries, or crowdfunding platforms that charge a fee for its services and provide a space in return for backers and organizers to interact (Shneor et al., 2020). Donors in the given scheme may usually be motivated by a wide range of rewards - monetary reward in form of return on investment, free samples of the final product created with the help of obtained financial capital, satisfaction of personal beliefs, pure selfless desire to support someone's initiatives or provide help in tough situations. Therefore, it is no wonder that crowdfunding gained popularity rather rapidly and nowadays is used in a variety of spheres.

Emerging technologies of the twentieth and twenty-first centuries gave rise to the modern version of this concept, with its inception in the year 1997 when a rock band from Great Britain collected money from its fans to initiate a tour dedicated to their reunion (A brief history of crowdfunding, May 2018). Already in 2009, in the aftermath of the Financial Crisis, crowdfunding established itself as an attractive source of alternative financing since opportunities to get funding from traditional institutions began to shrink. Since then, according to the statistics, crowdfunding began to gain momentum - according to GlobeNewswire (2022), the global crowdfunding market size reached a figure of $17.51 billion in 2021, and with a CAGR of 16.40% is expected to grow up to the value of $42.93 billion in 2028.

2.2. Existing types of crowdfunding

There are four main types of crowdfunding according to Hossain Oparaocha (2016):

- Equity-based crowdfunding (or profit-sharing crowdfunding)- is a model which includes financial return received by investors to motivate their contribution. Money is invested to get a share of the venture's future profits. As was stated by Hossain Oparaocha (2016), "Equity crowdfunding entails a great deal of business and legal consideration from both intermediary crowdfunding organizations and investors, as it clearly falls into the area of selling securities ".
- Reward-based crowdfunding in the literal sense rewards its backers with samples of the ready products, which can be also viewed as a pre-sale of the final good at a lower price. Other non-monetary rewards may be also considered, but never a financial return or share in the future enterprise.
- Donation-based crowdfunding is argued to be the simplest and the most popular form of crowdfunding, where donations are gathered for philanthropic purposes. Funders are not expecting any return on investment, only some form of gratitude such as a word of thanks, etc. They donate "to a cause they believe in, such as raising money to enable a music band to go on tour" (De Buysere et al., 2012).
- Lending-based crowdfunding implies a peer-to-peer lending format. Funders are providing capital with an expectation to get it back at a future point in time, most likely with an additional interest paid on it. A main distinctive feature of this type of crowdfunding is the fact that money is the only object of exchange.

3. Donation-based crowdfunding

In this section, we discuss donation-based crowdfunding in detail and cover major theories of donations. Thereafter, we review the previous literature and look into the key determinants of a successful crowdfunding campaign in a domain other than supporting a war. Based on that, we proceed to hypothesis development forming the base of further analysis.

3.1. Theory of Donations

The recent decade has been seen as a period of "polycrisis". Tooze (2022) coined the term to depict the diversity of ecological and economic challenges faced by the international community, accompanied by confounding effects of outbreaks of COVID-19 and Russia's invasion of Ukraine. At first glance, it may seem that fundraising for countries or regions other

than hometown or region tends to be unsuccessful since possible donors' attention is diverted from a global perspective to local initiatives that deal with the most crucial issues in the area.

However, Fridman et al. (2022) argue for individuals' generosity and altruism for others under adverse circumstances if nothing threatens the former ones. Having said that, they claim that social cohesion may occur as a result of social compassion theory, meaning that trust and cooperative behavior may increase if social groups are threatened. Translating this into the scope of our topic, the ongoing Russo-Ukrainian war must be addressing donors' attention from throughout the world that will provide financial support without expecting a monetary reward. That may be best interpreted in terms of donation-based crowdfunding. It denotes a new channel of philanthropy in the context of the online charity paradigm (Gerber and Hui, 2013).

The ideas of cultural group selection, reciprocity, and personal recognition pave the way for evolutionary theories of altruism and help-giving. The common basis for their frameworks is the donor (e.g., help-giver) and the recipient (e.g., help-receiver). Those two actors make those approaches dyadic, e.g. involving two actors (Fehr and Fischbacher, 2003). Meanwhile, Zhaoof and Shneor (2020) suggest that donation-based crowdfunding consists of three elements: the fundraisers, the donors, and the facilitator. Therefore, we consider donation-based crowdfunding as a modern extension of altruism.

All things considered, rational reasons as well as individualistic peculiarities may lead to a higher inclination towards making donations and being or becoming an altruist. In the following section, we determine explicitly the main factors of the campaign's success.

3.2. Determinants of successful crowdfunding campaigns

Overall, during the scope of our research we managed to outline 4 main categories of factors that contribute significantly to the campaign's success: features of campaign, fundraiser's, platform and project's characteristics. In this section, a description for each of them will be presented with the rationale explaining their mechanism of influence on the project's outcome. We review determinants for all types of crowdfunding campaigns, not only donation-based ones, since in the academic literature non-profit crowdfunding is not very extensively researched.

3.2.1. Features of the design of the campaign: tools supporting credibility

This determinant comprises all the elements that convince viewers about the campaign's credibility and trustworthiness. We define it as how campaign launchers make someone who has just opened the webpage believe that the funds will be indeed spent for good and why this initiative should be supported.

Visual aids (e.g., attached photo and video materials, documents, reports) tend to increase the likelihood of success as they: 1) require less cognitive effort for donors to process the details; 2) provide additional information and allow donors to better familiarize themselves with the matter of issue; 3) evoke empathy via the sensitive information conveyed in the forms of video or photo materials (Borrero-Domínguez et al., 2020).

Ho et al. (2021) studied the campaigns on GoFundMe.com aimed at food relief in the US at the peak of COVID-19. The main finding was that an active interaction with the viewer through photos (presence of images) and text materials (number of characters in title and description) addresses larger attention to the webpage and leads to a higher likelihood of success. Practically the same results were obtained by Alazazi et al. (2020) who tested the same hypotheses on the automatically scraped dataset of projects from *GoFundMe.com*. Although the effect of the number of photos is statistically different from zero, it is almost negligible. The number of videos appeared to have no effect. However, by adding to the *number of updates* (new reports or invoices) and *social media interactions* such as likes and shares, the accuracy of the model forecast improved. The authors arrived at the conclusion that those factors could be important determinants of the campaign's success.

Xu (2018) drew almost the same conclusion. Analyzing the projects on GoFundMe.com, the author derived that both pictures and videos have a positive effect on the total amount and average donation per donor. However, the number of videos in his research turned out to be a more powerful predictor than images.

3.2.2. Fundraiser's characteristics

Fundraiser's characteristics may affect the decision to donate as well. There is a tendency for *female creators* to raise more funds than males. According to Mollick (2014), that is the case for all types of crowdfunding. The study shows that females tend to set more modest requirements than men; at the same time, in the case of donation-based crowdfunding women are associated with higher empathy and more rational objectives.

There is also an observed positive relationship between the amount of money collected and the *network size* of the campaign (Belleflame et al., 2018). Network size denotes backers' feedback outside the projects, for instance in social networks and media. Thus, network size stands for the organizers' capacity to spread awareness of the project and its importance. Ho et al. (2021) found that launchers' capability to have the campaigns shared and reposted across public groups increases average donation.

Internationally renowned organizations raising funds are perceived as more trustworthy than others due to *established reputation* for previously delivered charity projects. Xo (2018) assumes it is due to the common belief that those charities exert more influence and respect from others, including governments (Shneor and Vik, 2020; Lubloy et al., 2019). Thus, Lubloy et al. (2019) assume that universities and scientists with strong reputations worldwide are preferred among donors for the support of medical campaigns because of the marketing attribute that their reputation exerts. Alongside that, internationally renowned charities enabled to produce significant impact by virtue of larger social capital. Considering the scope of this research (Ho et al. 2021; Borrero-Domínguez et al., 2020), we may presume that the size of the charities has a significant effect since donating to campaigns launched by reputable organizations in times of dire crisis allows possible donors to save time by not diving into the details.

3.2.3. Project's characteristics

The *aim of the project* also plays an important role (e.g., medical, educational, environmental). Almost all studies on donation-based crowdfunding include a dummy variable for the type of project which appears significant (Belleflame et al., 2018; Alazazi, 2020; Xu, 2018). Here we outline studies with the most exhaustive list of categories. Alazazi et al. (2020) distinguish ten categories of donation-based crowdfunding: business, community, competition, creative, education, emergency, faith, medical, memorial, and nonprofit. Noteworthy, each type is statistically significant in predicting the amount raised per day. Xu (2018) defines nine kinds of the project (accident-personal crisis, animal-pets, babies-kids-family, community-neighbors, education-school-learning, funerals-memorials-tributes, medical-illness-healing, non-profits-charities) and finds that the categorical variables denoting the project type were all proved to be significant.

The *project duration* may have a direct impact on its outcome - the longer the campaign is listed on the platform, the more exposure it gets in terms of viewers (Ho et al., 2021). Clearly, the possibility to get higher funding is bigger in this case.

Target amount is also often discussed in the context of similar academic research. Numerous studies include it as an independent variable denoting size of the campaign. First, there are controversial results on how the size of the target amount is associated with the number of funds collected. Shneor and Vik (2020) point out that the former positively affects the latter in the projects seeking donation-based crowdfunding. Presumably, it affects one's desire to donate owing to both a high sense of its importance – contributing to something vital or becoming a part of something bigger – and self-fulfillment coming from doing something good and benevolent.

In the explanatory study of Mollick (2014), a negative relationship between the success of the campaign and the amount of funds needed is observed using a dataset that consisted of nearly 50 thousand exclusively US-based projects on Kickstarter from 2009 to 2012. He suggests the basic requirement for the goal is to be realistic, since achieving more funding than stated is rare. Moreover, a lower target sum implies a higher speed of the venture execution. However, the result might be different for donation-based crowdfunding, where projects with a higher target sum may be projects of higher importance.

3.2.4. Donor's characteristics

Donors possess a certain set of characteristics that may be crucial for the success of the initiative, thus they need to be analyzed as well. They are centered around an individual's perception of a webpage, what may encourage them to donate or might scare them away, and how empathy is developed to make one resonate with the project's goals.

Liu et al. (2018) carry out qualitative research on what causes individuals' philanthropic behavior. The study distinguishes two main determinants for intention to donate: perceived credibility of a project and a strong feeling of empathy towards the goal, which hugely instigates a desire to help. Project quality and website convenience affect both factors. While credibility is mainly considered to be based on the initiator's reputation, feelings of empathy may differ for various groups of donors. Designing campaigns that will cater to the needs of the group of donors showing highest levels of empathy for the subject of the donations may help to gather more funds.

Noteworthy, *emigrants* exhibit empathy towards their home country and shape its development by donating and supporting local initiatives (Mariani, 2007). Lodigiani (2016) concludes that emigrants improve home-country political institutions at a distance by actively funding the projects, especially in the periods of dire crises. It has been shown that extreme events that take place in a home country of a certain individual (e.g., ongoing war in Ukraine) galvanized his ties with home and family, and make one constantly worry even if relatives are not threatened. Thus, emigrants tend to demonstrate higher interest towards initiatives organized with an aim to support their country of origin compared to the rest of the public residing abroad due to existing feelings of empathy towards their common national struggles.

3.2.5. Platform characteristics

Apparently, each crowdfunding platform uses different algorithms and is associated with different kinds of projects, features for donating (e.g., buttons with already specified sums, no requirement for Facebook/email login), and location (either country or region) where the platform is widely known.

There are two models of the platform's functioning: "keep-it-all" and "all-or-nothing". Whereas "keep-it-all" enables the funder to withdraw money once it has been donated, "all-or-nothing" assumes that one can keep money only when the target was achieved (Leboeuf et al., 2015). The latter category of platforms gives donors feelings of extra security since the main risk that the campaign will not reach its target sum is passed on to the entrepreneur. Intermediate withdrawal of money for "keep-it-all" projects may be spent on unintended purposes, and in case of the project failure to collect needed sums there is no guarantee that the money will be returned to donors.

The type of the platform's model may influence the role of updates since interim withdrawal enables the purchase of equipment and other items in the middle of the project. The *documentation* confirming prudent expenditures made to fulfill stated objectives and availability of the interim results may entice more donations by displaying the overall progress achieved due to the already raised money and indicating the success that is yet to come (Xu, 2018).

According to Lubloy et al. (2019), *more popular platforms* may deliver better results due to the higher number of users familiar with it, even though they may charge commission fees. Finally, Mollick (2018) states that investors tend to trust *older platforms* more since they have

already established a reputation, which also positively affects credibility. However, other specifications should be considered as well.

4. Hypothesis Development

This paper aims to identify factors that determine the success of a donation-based crowdfunding campaign aiming to provide help and support for Ukraine. We are eager to learn which factors affect the number of funds collected out from a list of outlined success factors in Section 2.4. Moreover, since the topic of crowdfunding initiatives employed with an aim to support the country during the war is barely investigated by the academia, we came up with additional success factors that were not covered in the literature before but should be relevant in our case.

Currently, we may expect that the attachment of photos and videos will be correlated with the success of the campaign, making the perception of the campaign much easier, thereby increasing the probability of reaching the target. In line with the studies by Ho et al. (2018) and Xu (2018), we expect variables denoting the presence of photos, and videos to be positive and significantly different from zero.

H1.A. The presence of photos attached is positively associated with the successful outcome of the campaign.

H1.B. The presence of videos attached is positively associated with the successful outcome of the campaign.

Updates posted keeps donors informed of the current project's progress, providing evidence of a project being actually carried out (e.g., invoices of purchase of supplies for citizens, new photo added, documentation revealed), and indicate the overall performance of the campaign (Alazazi et al., 2020). Thus, an increasing number of announcements may boost expectations about the campaign's performance and its credibility in the eyes of both random visitors and eager follower-donors.

H2. The number of updates is positively associated with the funds received.

The type of support (military or humanitarian) also may influence a donor's decision to contribute (Xu 2018, Alazazi et al. 2020, Ho et al. 2021). In this research, we will differentiate between humanitarian (e.g., help for children/animals, infrastructure renovation, medical aid, logistics, supplies to citizens) and military aid. Humanitarian support typically attracts more investors for a variety of reasons. Tomz and Weeks (2019) posit different assumptions for citizens' reluctance to support military initiatives. First, most religious beliefs forbid any belligerent actions toward another human being. Secondly, fear that supporting bellicose actions at the international level may provoke an attack on a home country may also lower a desire to contribute to the army in the military conflict. Thirdly, some individuals are looking at the world through a "democratic lens", which implies that truly democratic countries must not provide any unjustified military aid (the study's respondents were primarily from the US and the UK). Furthermore, military support implies strengthening army of another country, which a lot of people do not find acceptable (despite violating the core international law by one party). Finally, a potential backer, who is willing to help, may not want to delve into political details and just pursue his altruistic endeavors via donating for peace, as there is no way for peace to be established with the help of any weaponry. Even though Ukrainian soldiers defend their own lands and the independence of their country, people might be hesitant to donate to projects related to violent actions for a variety of mentioned above causes.

In addition to assuming higher popularity for projects with a humanitarian aim, we presume that donors who choose different types of campaigns tend to have different interests and personal beliefs, thus may exhibit different funding behaviors (e.g., animal lovers may be more empathetic than the rest of the people, thus donations to humanitarian projects aimed to help animals may have larger donations). Therefore, we develop the third hypothesis.

H3. Humanitarian projects attract more donations than military ones.

The proximity to the war plays a crucial role in determining one's attitude towards the conflict and hence willingness to donate for the victory of Ukraine and support of Ukrainians. In the case of the ongoing Russo-Ukrainian war, citizens of countries within Eastern Europe that share a common past of being a part of the communist regime tend to be more aware of the oppression and its consequences. In addition, they consider an opportunity for their country being

also dragged into the conflict if the situation is not going to be stabilized any time soon. Since in our dataset projects launched by organizers from Eastern Bloc target Eastern European audience which might be more empathetic toward the conflict out of national memory, we hypothesize that campaigns launched by Eastern Europeans are more actively supported due to aforementioned reasons and, thus, are more successful.

As for the other nationalities, similar tendencies as in the Eastern Bloc, are also present regarding the country of origin of the organizer and its target audience, i.e., people from US launch campaigns to collect money from the US audience to support Ukraine. Thus, we added the categorical variable denoting the launcher's country of origin which might be Ukraine, Eastern Bloc (Estonia, Latvia, Lithuania, Poland, Czechia, Slovakia, Hungary, Romania and Bulgary), Western European countries (except for US, UK), anglosphere (US, the UK, Canada, Australia and New Zealand), and others. The citizens of the latter ones have less exposure to current events, but they have Ukrainians as one of the largest diasporas of émigrés since the twentieth century. Thus, referring to Lodigiani (2016), we argue that this vital crisis evokes memories of diaspora and makes one provide financial and volunteering aid. Therefore, we expect the effect of the countries with large Ukrainian diasporas to be positive and statistically significant on the final amount of funds collected.

H4. The country of the launcher's origin affects the likelihood of the project's success.

As the war keeps dragging on, there are fewer and fewer headlines mentioning Ukraine. According to Mykhailo Fedorov, the Minster of Digital Transformation of Ukraine, "There is a wave and there is this kind of euphoria, but then it abates "(Beaty, 2022). Thus, we presume that there is a gradual attenuation of momentum to invest in campaigns centered around the war – so-called "fatigue".

H5. There is a gradual decrease in donations to campaigns centered around the Russo-Ukrainian war over time.

5. Data and Methodology

To address the research question, first we use quantitative analysis to examine potentially existing relationships between selected variables. To be more precise, it is a quantitative cross-

sectional research design, since information for the project has been gathered at a single period of time[1]. Additionally, as stated in the introductory part, we conduct qualitative research aiming to find out whether an expert's opinion matches with findings from the quantitative part and get some additional information on aspects that are not possible to quantify and investigate solely with the use of statistical methods.

5.1. Data

The data for the project was compiled manually from the following seven crowdfunding platforms that include the highest number of projects to support Ukraine based on our initial screening of the biggest donation-based crowdfunding venues:

- GoFundMe.com (https://www.gofundme.com/s?q=Ukraine)
- biggggidea.com (https://biggggidea.com/projects/)
- PeoplesProject (https://www.peoplesproject.com)
- WeaponstoUkraine (https://www.weaponstoukraine.com)
- GlobalGiving (https://www.globalgiving.org/projects/protect-the-bravest/)
- CrowdFunder (https://www.crowdfunder.co.uk/p/aid-for-ukraine-4/comments#start)
- Fundly (https://fundly.com/humanitarian-aid-for-ukraine-1)

GoFundMe is an American platform for non-profit crowdfunding. It was founded in 2010, and since then in the period till 2020, 9 billion USD were raised from over 120 million donors (Wikipedia, January 2023). Several notable projects were launched on this platform that contributed to the increasing popularity of the platform over the years.

Biggggidea is a first Ukrainian-based crowdfunding platform that publishes a wide range of projects: startup ideas, social initiatives, cultural events, etc. Main idea of the platform is to provide an opportunity to its donors to contribute to the development of a strong and open society, therefore all the projects have a main motive of “doing something good” instead of “doing something for profit”. As a result, campaigns launched there are non-profit ones, targeting the most acute problems of Ukrainian society (Biggggidea, January 2023.).

[1] Manual data collection was a time-consuming process, so it was impossible to collect all the data at one point in time. We add dummies for different weeks of data collection to regulate for the potential time differences.

PeoplesProject is a non-profit organization which was founded in 2014 as a Ukrainian military and civil crowdfunding project after the annexation in Crimea and war in Donbass. Thousands of volunteers are actively engaged in the activities undertaken by People's Project, contributing to the fact that over 100 charity projects were already realized with the help of the platform and 100 million UAH collected in funds (PeoplesProject, January 2023).

WeaponsToUkraine is a project initiated to support the Ukrainian army, where all transferred funds go to the account of the Ukrainian Embassy in Prague. Platform was created by Czech entrepreneurs and has already raised more than 40 million USD in donations mainly from citizens of the Czech Republic (WeaponsToUkraine, January 2023).

GlobalGiving is another US based platform launched in 2002 that specializes in non-profit crowdfunding for charitable projects. Since its inception it has collected more than 750 million USD to finance more than 33 000 projects (Wikipedia, 2022).

Crowdfunder is a UK-based project that has already raised over 250 million GBP from around 1 million supporters (Crowdfunder, January 2023). The main mission of the company is to tackle society's challenges with the help of funding provided by the users of the platform in return for either rewards, or community shares (or in the case of donations, a sense of personal fulfillment).

Fundly is a crowdfunding site with US headquarters. It similarly allows to raise funds for nonprofits campaigns and has already managed to provide over 300 million USD for charities, churches, schools, clubs, and other social causes (Wikipedia, 2022).

The main criteria for including crowdfunding platforms in the sample were the following:

(1) The platform must be devoted to non-profit crowdfunding.

(2) The platform must contain information on past projects.

(3) The platform must contain information about the target sum of funding and preliminary results.

(4) Detailed information about the funded projects must be also present on the platform (e.g., description of the purpose of the project, any photo/ video materials, comments from the organizers of the campaign).

(5) Platforms must publish similar project-related information so that projects listed on different platforms could be combined into one dataset and then compared.

(6) It should be possible to retrieve information regarding the duration of the projects. Starting date should be introduced into the data set to control later for the duration of the project and time effects.
(7) Platform must contain at least 7 projects related to the war in Ukraine, so that regression coefficients for platforms can be analyzed, representing trends for a decent number of observations.

Main project's criterium was the date of the project's initiation - all collected campaigns were launched after 24th of February since our research is focused on the support provided to Ukraine in the ongoing full-scale war with Russia. Alternatively, some of the projects were created after the initial stage of the conflict - war in Donbass that started in 2014 but gained significant traction and additional activity from the organizer's side after 24/02/2022. Moreover, we have set the minimum possible target amount of 250 EUR: 1) to make sure that we explore success factors for meaningful projects, where efforts should be put in terms of design and the whole launching process to achieve the final target, and 2) control for noisy effects coming from small projects where one particular factor can by chance add lots of abnormal effect to the final outcome of the small project.

No inclusion criteria were chosen for the language used on a platform in order to be able to collect a more extensive database of crowdfunding campaigns.[2] Similarly, geographical coverage of the platform was not restricted- most of the platforms are either US or Europe-based[3], so projects are relatively compatible in terms of provided information.

All the data collected were available in the campaign description, and no additional screening was required.

5.2. Variables

5.2.1. Dependent variables

The most straightforward option for the dependent variable in our case is to use the raised amount of funds, which is employed in the main regression.

[2] We did not have a lot of variability in terms of languages used in description (English, French, German/ Dutch, Ukrainian, Russian; most popular option - English accompanied by one of the above-mentioned languages), so there was no need to eliminate certain projects/platforms based on the language criteria.
[3] Three European countries are present in our sample - UK, Ukraine, and Czech Republic.

The simplest measure used in the previous literature on success factors of crowdfunding campaigns is a binary variable, denoting 1 when the targeted amount is reached, and 0 otherwise (Xo, 2018). We employed a more advanced version of it for the second complementary regression –percentage of the target amount raised, so that it is clear how far or close the campaign is towards reaching its funding goal.

Unadjusted-for-size variables such as the number of investors or project duration were not considered due to possible biases being introduced into quantitative analysis, i.e., projects that are large in terms of the target amount will by default take more time to collect those funds and a higher number of investors are required for them as well.

5.2.2. Independent variables

While choosing independent variables, we largely relied on the previous literature reviewed in the Section 4.2. We ended up with the 12 key variables that may explain the outcome of the crowdfunding campaign launched with an aim to support Ukraine and its citizens during the current Russian invasion. The final list of independent variables and its expected influence on the project success, defined by aforementioned dependent variables is presented in Table 1. Those, that are constitute our hypotheses are marked with an asterisk.

Table 1. *Independent variables*

Variable	Variable name	Brief description	Expected sign
Tools supporting credibility			
Photo material*	*photo_bin*	Binary variable, denoting whether an image/s is/ are attached to the description of the campaign	+
Relevant photo material	*photo_related_bin*	Binary variable, that takes value of 1 if photo material is relevant to the campaign's topic, 0 otherwise. More explanations are provided below.	+
Video material*	*video_bin*	Binary variable, which equals 1 if there are any complementary video materials, 0 otherwise.	+

Number of words in the description	*words*	Continuous variable, which counts the number of words in the description.	+
Documents attached	*docs_bin*	Binary variable, denoting whether there are any documents attached in the description (1), or none (0).	+
Number of updates*	*updates*	Continuous variable that counts the number of updates that were posted by the organizers of the campaign.	+
Number of seconds in the video	*seconds*	Continuous variable that equals to a number of seconds in the attached video.	+
Fundraiser's characteristics			
Experience in projects concerning Ukraine	*ukr_exp*	Binary variable that shows whether organizers of the campaign had previous experience in terms of projects for the support of Ukraine (1), or none (0).	+
Nationality of organizers*	Set of respective categorical variables	Categorical variable: 1 - UKR, 2 - Eastern Europe, 3 - International organizations, 4 - Western Europe, 5 - the US & Canada, 0 - other countries	+/–
Project's characteristics			
Category for humanitarian aid*	Set of respective categorical variables	Categorical variable. We divided humanitarian projects into the following groups based on its final goal: ➢ Education ➢ Energy ➢ Help for animals ➢ Help for children ➢ Humanitarian ➢ Individual family ➢ Medical help ➢ Mental help ➢ Rebuilding infrastructure ➢ Refugees	+/–

		➢ Support for media ➢ General	
Category for military aid*	Set of respective categorical variables	Categorical variable. We divided military projects further into the following categories based on the goal of these projects: ➢ Military equipment for troops ➢ Non-military equipment for troops ➢ General	–
Integer for a target amount	*is_hundreds*	Binary variable, equal to 1 if the last digit of the number for the target amount is zero, 0 otherwise.	–
Platform characteristics			
Platform	Set of respective categorical variables	Categorical variable, indicating the exact platform where the project was launched: ➢ Biggggidea ➢ Crowdfunder ➢ GoFundMe ➢ Fundly ➢ Global giving ➢ PeoplesProject ➢ WeaponstoUkraine	+/–

Source: created by the authors

Tools supporting credibility. As was discussed in the literature review, *attached photo and video materials* are expected to positively affect the outcome of the campaign, thus we included them among the independent variables. However, during the process of data collection we discovered that not all the provided photo material may convey useful information regarding the campaign idea. In most cases, platforms require initiators of the project to select an image, so some people end up posting random pictures while creating their fundraiser. Even though they can provoke some empathy, or simply capture the attention of the people, they do not communicate any relevant information for the project. "Relevant photo material" in the scope of our research implies photo material that depict invoices or documentation for the campaign, people that the project is supporting, intermediate progress achieved with the help of already

withdrawn money, etc. We expect to see a higher effect of the relevant photo materials on the outcome of the campaign, that is why this differentiation was introduced.

As for the *video materials*, there were no cases when the video did not provide any additional information regarding the project itself, consequently, there is no need to introduce relevance of the video material variable. However, a *number of seconds* in the video was added to measure its informativeness.

Previous studies by Ho et al. (2021) have suggested that an increase in the variables denoting the numbers of words in the campaign description and attached documents could enhance a campaign's chances of obtaining the necessary funding. Longer description implies more information disclosed by initiators, which creates a sense of credibility and trustworthiness. In a similar manner, attached documents confirm stated information in the description and provide transparency regarding expenditures or additional information that is relevant for the aim of the project.

Number of updates about intermediate results was taken into account while analyzing all possible success factors, which is consistent with literature review. While using the phrase "intermediate results", we imply that a visitor should be able to see the funds that the campaign has already raised and how they were spent in case they were already withdrawn from the platform, plans regarding the future expenditures that are supposed to occur, or any other updates regarding the ongoing project-related activity of its the organizers. We consider them to be important determinants of campaign success – being able to see results and performance of the project throughout the process of collecting funds can largely contribute to the reinforcement of towards launchers.

Fundraiser's characteristics. *Nationality of organizers* is a categorical variable denoting countries of origin for initiators of the projects. As it can be seen in the table, we outlined 6 main groups of countries represented in our dataset: 1) Organizers with Ukrainian origins; 2) Organizers from Eastern Europe (former Eastern Bloc); 3) International organizations; 4) Fundraisers from Western Europe; 5) Fundraisers with US, Canadian, Australian origins; 6) All other possible options for this variable.

The rationale for comparing success rates between initiators of projects with different backgrounds was already stated in the Section 4.2: we presume that nationality of organizer does affect the target audience of the project launched (via the language in which the project is

described, country in which platform is mainly used, network effects, etc.). Targeted audiences from across the globe may also react differently to the unfolding events - Ukrainians as well as nations located closer to the zone of conflict in geographical terms do worry about the outcomes of this invasion more than people living on longer distances from the epicenter of the events.

Touching upon other characteristics of the initiator of the campaign, our hypothesis suggests that *experience in projects concerning Ukraine* should positively influence the results due to better understanding of the whole process and possibly developed network of people interested in respective social activity.

Project's characteristics. One of our aims is to figure out whether there is a different perception of *military and humanitarian campaigns* targeted at providing support to Ukraine. Detailed argumentation stating why we do expect to see a difference in the successfulness of raising funds between the two types of campaigns was provided in previous sections as well. While screening our data, we came up with 12 key areas of assistance in humanitarian aid:

- Education – projects that were created with an aim to give access to studies or facilitate this process in rather stressful and inconvenient conditions for Ukrainians.
- Energy – campaigns launched due to the damage caused by the war to the Ukrainian heating infrastructure. In the middle of the research, just before the winter period Russia attacked Ukrainian power infrastructure, leaving millions of people without heating and lightning. As a result, plenty of campaigns emerged raising funds for generators, warm clothes, etc., since the threat posed by the absence of heating was quite significant.
- Help for animals – fundraisers created to save animals (evacuate them to safer places or provide necessary treatment for wounded ones).
- Help for children – projects collecting donations to support Ukrainian children in a variety of ways: by providing medical treatment, clothes, food, etc.
- Humanitarian – campaigns serving basic necessities (food, warm clothes, etc.) to Ukrainians that are still residing in Ukraine.
- Individual family – projects initiated with an aim to provide funds for some specific family due to a variety of reasons: necessity of reallocation, lack of funds for medical treatment, etc. We are curious to test whether people are willing to support those who were affected by the war since such projects in most cases are often created by individuals with no previous experience in launching a campaign contrary to other types of projects

that are created in partnerships with various funds, charities, or individuals actively involved in volunteering.

- ➢ Medical help – fundraisers collecting donations to provide medical treatment for Ukrainian citizens affected by the war.
- ➢ Mental help – donations gathered with an intention to ensure psychological support for Ukrainians struggling emotionally/ mentally because of the war.
- ➢ Rebuilding infrastructure – campaigns devoted to collecting budget for the renovation of the Ukrainian destroyed infrastructure in the scope of the Russian invasion.
- ➢ Refugees – projects that were organized to cover basic expenses/ needs (food, clothes, a place to live in) of Ukrainian refugees residing outside and experiencing financial troubles.
- ➢ Support for media – funds that are crowdfunded to give an opportunity for media sources to spread awareness of the ongoing military conflict and keep others informed regarding the latest events happening in Ukraine and Russia.
- ➢ General – rest of the campaigns that do not specialize in some particular problems and are covering plenty of spheres or some unpopular ones that were rarely mentioned in the dataset.

No assumption about the effect, its significance, and scope for a particular above-mentioned category is made so far. However, due to reasoning provided in the literature review part, humanitarian projects in general are assumed to be more successful than the military ones.

In a similar manner, military projects were divided into those that raise funds for non-military (clothes, medicine for troops) and military equipment (drones, weapons, etc.). We presume that people are inclined to donate less funds for the sake of purchase of weapons due to ethical reasons and religious beliefs. All other military projects that did not fit into this categorization were grouped as “general”.

Psychological pricing is a strategy that takes advantage of how consumers perceive prices. Sprott and Manning (2019) argue that this effect may also apply to crowdfunding projects, where the target amount can be viewed as a "price". However, in this context, pricing just below a round number may not increase attractiveness as it does for traditional products. Donors may actually trust a target amount more if it does not have a last zero-digit since it implies that certain

calculations were made for the required funds, rather than an arbitrary estimate was chosen. We would like to test whether having a round number as a target would make reduce donors' contributions – so, to see how psychological pricing affects in a different setting of crowdfunding.

Platform characteristics. Finally, because we collect data from several crowdfunding platforms, we can analyze and control for the platform-specific effects on the success of the project. Previous studies were focused mainly on one specific crowdfunding website, so there was no need for a similar control variable. Nevertheless, we do expect to see differences among identical projects launched on different platforms via the following channels:

1) Some platforms are simply more popular and have a broader range of users, so projects launched there can get higher public exposure.
2) Each platform puts emphasis on different aspects of a campaign, either it is design, required material to be provided by the organizer, ability to post updates, etc. Thus, for example, a platform that allows for communication between initiators and donors with the help of updates is better in establishing trust among those 2 types of users, which is crucial for the final success.
3) Different target audience because of the geographical coverage (due to the arguments provided in the literature review section by Cordova et al. (2014)).

5.3. Research methodology

5.3.1. Quantitative methodology

The backbone of the research paper is an econometric analysis conducted in the form of an OLS regression, capturing the effect of the chosen variables on the measures of the crowdfunding's project successfulness- the ratio of actual funding raised to the fundraising target, and the amount of funds collected. Selected independent variables are summarized in Table 1. Probabilistic and logistic regression were not a topic of our interest since we have more informative options for dependent variables rather than simple binary variables, denoting whether the targeted amount was reached, or not.

Multicollinearity issues were detected with the help of VIF, variance inflation factor, that shows contribution for each of the variables to the standard error of the respective regression. As in the theoretical framework provided by Rogerson (2001), the VIF indicator should not exceed 5 to avoid multicollinearity issues.

Our dataset contains missing values and outliers that cannot be computed by means due to substantial lack of data on crucial control variables that had constituted more than 9% of the dataset, which is much higher than the benchmark of 5% (Statistical analysis with missing data, 2020). In this research, we identify outliers as values outside 3 standard deviations from the mean. We eliminate observations with missing values and outliers consecutively for each key variable, resulting in a reduced dataset of 211 observations out of the initial 285 unique observations.

Data for the project was compiled during the period from 16/11/2022 until 09/02/2023. Since the whole dataset was collected manually during those 3 months, we include dummy variables denoting respective *weeks when the campaign was added to the dataset*. The main point of this adjustment is to consider the fact that the events are unfolding with the extreme speed in Ukraine- new needs of the affected population are emerging, which may distract from previous projects, leading to higher popularity of newly emerged ones with an increased importance. To better illustrate the logic behind this, let us consider a practical example with a series of Russian strikes against Ukrainian infrastructure. During the 12/12/2022-16/12/2022 strikes became extremely aggressive, and the fact that it happened during the winter season made people all over the world worried about how Ukrainians would survive winter without a proper heating, electricity, or water. Consequently, several campaigns surfaced on crowdfunding platforms that were dedicated to addressing this issue, displacing campaigns with a different emphasis.

In addition to the mentioned data transformations, we need to control for a couple more effects that may indirectly affect the outcome of a campaign through external factors. Firstly, we control for the duration of the project to avoid bias caused by campaigns that accumulated funding for a long time.

Coming back to the discussion on the size of the campaign, in preliminary stages of our research we tried to include the target amount as an independent regressor in our models. The main argument in favor of inclusion of this variable into the regression analysis was to check how the size of the campaign affects its outcome - we used it to control for the potential differences in the fundraising process that emerge as a result of different scopes of the projects. However, in our case regressions that incorporated target amount as a regressor showed artificially high R-square - explaining the amount that is required to collect by target amount did not make much sense. We would end up with a model that almost perfectly explains observed data but is designed to show such results by default since we want our par amount collected per project to converge to the

target amount set by the organizer, so to say our independent regressor to match with the dependent variable.

For size, categorical variable was used instead of the target amount of funding- all observations were grouped into categories based on the respective percentile for the target amount:

- Small-size projects. These are the projects that fall within the lowest 33% of all observations based on the target amount. In other words, any project that falls below the 33rd quantile of the distribution based on the target amount would be considered a small-size project.
- Medium-size projects. These are the projects that fall within the 33rd to 66th percentiles of the distribution based on the target amount. Any project within the 33rd and 66th quantiles of the distribution based on the target amount would be considered a medium-size project.
- Large-size projects. These are the projects that fall within the top 33% of all observations according to the required sum of funds. So, a campaign that is above the 66th quantile of the distribution based on the target amount would be considered a large-size project.

The OLS regression model corresponds to our choice of continuous dependent variables for the research design. With linear regression we can assess the average change of dependent variables (success measures) in response to one unit change for each independent variable (success factors).

1. The main regression with collected amount of funds as dependent variable is as follows:

$$\ln(amount_i) \sim \beta_0 + \beta_1 docs.bin_i + \beta_2 photo.bin_i + \beta_3 \ln(seconds_i) + \beta_4 photo.related.bin_i + \beta_5 humanitarian.binary_i + \beta_6 ukr.exp_i + \beta_7 \ln(updates_i) + \beta_8 words_i + \beta_9 \ln(websites_i) + \beta_{10} nationality_i + \beta_{11} \ln(days_i) + \beta_{12} size_i + \beta_{13} weeks_i + \beta_{14} is.hundreds_i + \varepsilon_i$$

2. We run complementary model with ratio of raised funds to target sum as a response variable:

$$Overfunding_i \sim \beta_0 + \beta_1 docs.bin_i + \beta_2 photo.bin_i + \beta_3 \ln(seconds_i) + \beta_4 photo.related.bin_i + \beta_5 humanitarian.binary_i + \beta_6 ukr.exp_i + \beta_7 \ln(updates_i) + \beta_8 words_i + \beta_{10} nationality_i + \beta_9 \ln(websites_i) + \beta_{11} \ln(days_i) + \beta_{12} size_i + \beta_{13} weeks_i + \beta_{14} is.hundreds_i + \varepsilon_i$$

3. Further we advance the regression with collected amount to account for different types of humanitarian campaigns:

$$\ln(amount_i) \sim \beta_0 + \beta_1 docs.bin_i + \beta_2 photo.bin_i + \beta_3 \ln(seconds_i) + \beta_4 photo.related.bin_i + \beta_5 humanitarian.category_i + \beta_6 ukr.exp_i + \beta_7 \ln(updates_i) + \beta_8 words_i + \beta_9 \ln(websites_i) + \beta_{10} nationality_i + \beta_{11} \ln(days_i) + \beta_{12} size_i + \beta_{13} weeks_i + \beta_{14} is.hundreds_i + \varepsilon_i$$

4. And repeat the same for the military ones:

$$\ln(amount_i) \sim \beta_0 + \beta_1 docs.bin_i + \beta_2 photo.bin_i + \beta_3 \ln(seconds_i) + \beta_4 photo.related.bin_i + \beta_5 military.category_i + \beta_6 ukr.exp_i + \beta_7 \ln(updates_i) + \beta_8 words_i + \beta_9 \ln(websites_i) + \beta_{10} nationality_i + \beta_{11} \ln(days_i) + \beta_{12} size_i + \beta_{13} weeks_i + \beta_{14} is.hundreds_i + \varepsilon_i$$

As for the robustness check, we include categorical variables denoting the platform where the respective campaign was launched. Platform contributes significantly to the success of the campaign - it incorporates in some way effects coming from the network of its users, geographical coverage that determines target audience and nationality of the organizer, possibility to post photo/video materials and updates as well as other platform's peculiarities (e.g., required minimum number of websites attached). Thus, if the effect of our independent variable is significant after inclusion of platforms into the regression, we consider it to be a useful and reliable determinant of the success of the campaign in our sample.

Additionally, we tried to experiment with the textual analysis of descriptions provided for collected campaigns to check whether the context of the provided information may influence donor's willingness to donate. Results are not very representative, so we will not emphasize this type of analysis in the next sections, however they can be viewed in the Appendix A.

5.3.2. Qualitative methodology

Creswell (2014) suggests that combining quantitative and qualitative research methods results in a more comprehensive understanding of a research problem than using either method alone. Therefore, to gain a deeper understanding of the factors leading to success or failure of crowdfunding initiatives created to support Ukraine and obtain insights from professionals, we conducted email surveys with three respondents (German, Polish and Ukrainian fundraisers) that directly took part in the organization of the similar projects. Email surveys were chosen because participants had more time to provide answers and analyze the drivers of success more carefully. Also, in email survey respondents are more likely to provide honest answers, and there is no

interviewer bias (Seale, 2012). However, the downside according to the Seal (2012) is that email surveys usually allow for a limited number of questions. The survey questionnaire used is included in Appendix G.

6. Results

6.1. Descriptive statistics

The final dataset consists of 211 campaigns from seven different platforms. Amount of funding was denominated in EUR at exchange rates dated back to February 8, 2023. In Table 2, we provide descriptive statistics on the projects, summarized by minimum, maximum, mean values and standard deviation. On average, a campaign in our sample raises EUR 33,819 in funding, ranging from EUR 13.94 to EUR 1,118,860 with a respective median of EUR 3,662. The mean of the overfunding rate (amount of funding proportional to target sum) indicates that campaigns tend to achieve only half of the initially set sum of funds.

Table 2. *Summary statistics for dependent variables (denominated in EUR)*

Variable	Mean	St. dev.	Min	Max
Amount of funding	33,819	119,763	14	1,118,860
Overfunding	0.504	0.395	0.00012	1.76

Source: created by the authors using R software

Table 3 presents information on various crowdfunding platforms in terms of the number of observations, mean, standard deviation, minimum, and maximum funding amounts. The highest mean funding amounts are observed for *GlobalGiving* and *WeaponsToUkraine*, indicating that the largest projects were launched on these two platforms. The platform called *PeoplesProject*, that is related to military crowdfunding, exhibits the highest average donation per individual investor. The highest average number of donations per campaign is observed for *WeaponsToUkraine*, indicating the popularity of its projects, which are again launched for military purposes. Even though military campaigns constitute around 25% of the sample, the scope of crowdfunding for Ukrainian Military Forces is quite significant based on the metrics described above.

Table 3. *Summary statistics for platforms (denominated in EUR)*

Platform	Number of obs	Mean	St. dev	Min	Max
Biggggidea	12	4,740	6,290	14	17,805
Crowdfunder	16	7,060	17,043	147	69,262
Fundly	13	22,301	45,171	219	126,804
GlobalGiving	33	42,216	87,083	118	553,687
GoFundMe	107	23,484	108,558	186	1,084,142
PeoplesProject	16	69,866	108,940	2,855	368,203
WeaponstoUkraine	14	307,555	541,220	19,580	1,118,860

Source: created by the authors using R software

Summary statistics for the independent variables are provided in Table 4 and 5. Photo materials are present for 93% of observations in the sample. Less than half of the campaigns are launched by individuals with any prior crowdfunding experience in Ukraine- many campaigns in our dataset are initiated by first-time crowdfunders. On average, each campaign website contains at least one link to an external webpage, indicating that campaigners are leveraging external resources to help promote their campaigns. Updates are also quite common- on average 6 updates per campaign are posted. Almost 50% of the projects are launched by Ukrainians, other 22%- by Western Europeans. Organizers from anglosphere initiated another 20% of the collected campaigns, while for Eastern Europeans this number is equal to 4%. Finally, humanitarian projects are more frequent (75%) than the military ones (25%) for our database.

Table 4. *Summary statistics for numerical independent variables*

Variable	Mean	St. dev.	Min	Max
Tools supporting credibility				
seconds	65.156	197.68	0.00	2,135
updates	6.640	28.80	0.00	30
websites	1.13	1.64	0	12
Control variables				
days	168.408	326.9	0	2517

Source: created by the authors using R software

Table 5. *Summary statistics for categorical independent variables*

Variable	Categories	Observations

Tools supporting credibility			
photo_bin	yes	0.93	197
	no	0.07	14
docs_bin	yes	0.13	27
	no	0.87	184
photo_related_bin	yes	0.53	112
	no	0.47	99
Fundraiser's characteristics			
ukr_exp	yes	0.28	59
	no	0.72	152
nation	0 (others)	0.00	1
	anglo	0.19	40
	east	0.04	8
	int_org	0.07	15
	ukr	0.47	99
	west	0.23	48
Project's characteristics			
humanitarian_bin	yes	0.73	155
	no	0.27	56
humanitarian_category	0 (military)	0.27	56
	education	0.02	4
	energy	0.10	21
	evacuation of citizens	0.01	2
	general	0.08	16
	help for animals	0.03	6
	help for children	0.10	21
	individual family	0.10	22
	medical help	0.08	17
	rebuilding infrastructure	0.01	3
	refugees	0.08	16
	supplies to citizens	0.11	23
	support for media	0.02	4
military_category	0 (humanitarian)	0.73	155
	clothes for soldiers	0.01	3
	drones	0.05	10
	equipment for troops	0.09	19
	general	0.04	8
	medicine for troops	0.04	9
	training for soldiers	0.01	2
	vehicles for troops	0.00	1
	weapons for civilians	0.02	4
is_hundreds	yes	0.78	165
	no	0.22	46

Control variables			
size	small	0.33	70
	medium	0.33	69
	large	0.34	72
weeks	37	0.13	27
	38	0.06	12
	39	0.01	3
	40	0.32	67
	41	0.18	38
	42	0.15	32
	48	0.15	32

Source: created by the authors using Excel

According to Moore et al. (2013), if two independent variables have correlation coefficient higher than 0.7, they are considered to exhibit strong relationship. Thus, we exclude ones that might be explained by others using correlation benchmark of 0.7, presented in correlation matrix in Appendix B. Number of updates is highly correlated with the number of documents attached (see correlation matrix, ρ=0.84), which may be explained by the fact that any kind of documents (e.g., bank receipts, accounting) that are being attached to the web pages appear as an update for most of the platforms. Thus, information on any kind of reporting may be factored in the *ln_updates* variable. We also suspected a potential dummy variable trap in case with the variables called *video_bin* and *seconds*. If *video_bin* is equal to 1, the number for *seconds* is automatically a non-zero number. In case *video_bin* is 0, number of *seconds* is automatically 0. As a result, we did not use *video_bin* in our regressions so that the number of independent regressors is not very high.

To become more familiar with the database and seek already for some superficial trends related to the differences between successful and unsuccessful campaigns, we investigated empirical data with the help of the following descriptive statistics: in the Table 6 below for each crowdfunding platform we provided the number and proportion of projects that (1) achieved the target amount, (2) exceeded the target, (3) failed to achieve the target. For each of those categories in the Appendix C you can find a table that contains computed mean and, where applicable[4], standard deviation for the following variables:

[4] Some of the mentioned variables are binary, so it makes little sense to calculate standard deviation for those.

- target amount;
- amount raised;
- binary for presence of photos;
- binary for presence of videos;
- number of updates;
- binary indicating whether it is a humanitarian campaign;
- binary indicating whether the launcher of the campaign has previous experience with Ukrainian projects launched to support the country during the war

No interesting trends were observed while investigating Table C.1. from Appendix C for the potential differences in independent variables for failed and successful projects, so it was not included in the main part of the Bachelor's Thesis but rather placed in the Appendix.

Table 6. *Summary statistics for two groups of projects (successful and unsuccessful ones) per platform*

Platform	n_success	n_exceed	n_fail	prop_success	prop_exceed	prop_fail
Biggggidea	2	2	10	0.167	0.167	0.833
Crowdfunder	3	3	13	0.188	0.188	0.812
Fundly	1	1	12	0.076	0.077	0.923
GlobalGiving	1	0	42	0.023	0	0.977
GoFundMe	14	10	93	0.131	0.094	0.869
PeoplesProject	7	5	9	0.438	0.312	0.562
WeaponstoUkraine	3	0	1	0.75	0	0.25

Source: created by the authors using R software

According to the Table 6, military projects[5] in our dataset has the lowest probability to fail during the collection of funds. They are also more likely to turn out successful according to our computations for the respective probabilities. No tendency was spotted for the probability of the project to collect sum of money that exceed the target amount.

6.2. Regression results and discussion

6.2.1 Amount of funding

[5] In our sample, PeoplesProject and WeaponstoUkraine are the platforms that contain military projects, the rest of the platforms focus fully on humanitarian types of campaigns (except for GoFundMe, which combines both).

In the first regression we use *ln_amount* as a success measure, logarithmic value of the amount of funds a campaign has raised upon the date of data collection (Table 7). The logarithm allows for different scales of dependent and independent variables as well as for transformation of non-linear relationship. Variance inflation factor (VIF) analysis for both continuous and categorical variables per model can be found in Appendix D.

Out of the variables that assess credibility of a campaign, only *ln_updates* appear to be positively significant at the level of 5%. A one-percent increase in the number of updates on the campaign's webpage causes an increase of the amount raised by approximately 0.35%. This finding is in line with the conclusions reported by Alazazi et al. (2020).

The variable reflecting previous project experience with projects supporting Ukraine – *ukr_exp* – is positive and statistically different from zero. Firstly, having experience with projects related to Ukraine may indicate a higher level of expertise or familiarity with the region, which can help build credibility and trust with potential donors. This can make them more willing to donate or invest in the campaign. Secondly, having previous project experience with projects supporting Ukraine may also provide valuable networking opportunities, allowing the campaign to tap into existing networks and connections to reach a wider audience of potential donors. Finally, it's possible that the positive relationship between *ukr_exp* and the amount raised is simply due the quality of the campaign's messaging or the effectiveness of its outreach efforts. In other words, the variable *ukr_exp* may simply be acting as a proxy for these other factors that are difficult to measure directly. Overall, the positive significance of the variable *ukr_exp* suggests that previous project experience with projects related to Ukraine can be a valuable asset in helping a campaign raise more funds.

The positive effect of the *nation_east* variable on the logarithm of funds raised by the campaigns dedicated to the war in Ukraine suggests that campaigns launched by individuals from countries in the Eastern Bloc tend to raise a higher amount of funds in comparison to campaigns launched by individuals from other countries. Firstly, it may be so, because campaigns launched by individuals from countries in the previous Eastern Bloc may have more credibility among donors. Shared history of communist oppression revokes national memory and roots deep empathy towards Ukrainians for people from Eastern Europe. In addition, geographical proximity to the conflict contributes to a more direct connection of Eastern European organizers to the whole situation as well as its better understanding, which can make their campaigns more

compelling and trustworthy. Secondly, campaigns launched by individuals from countries in the previous Eastern Bloc may be better able to tap into existing networks and communities of donors as well as are more likely to possess useful contacts for realization of the project because of the increased likelihood of personal contacts with Ukrainians due to geographical and historical proximity.

The positive and significant connection between the *is_hundreds* variable points out that campaigns with target amounts that end with zero-digits tend to raise more funds than campaigns with non-zero ending target amounts. It's possible that round numbers may be more psychologically satisfying to fulfill, which can make potential donors more likely to commit to larger amounts.

The results suggest that the control variable *size* is significant per each category. This implies that campaigns of different sizes are likely to receive different levels of funding, with larger campaigns receiving more funding than the smaller ones. This is an intuitive result, as larger campaigns that target more funding are likely to receive more funding compared to smaller, individual initiatives.

Variable *weeks* appears significant for 40th, 41st and 42nd weeks of the year. The data was collected manually during 5 consecutive weeks, and we can see gradual decrease in the collected funds throughout the given time period. It could be argued that this might happen because of gradual loss of momentum. In other words, with the passage of time the topic of war might have been losing attention in the international agenda and the world's population does not follow the course of events as thoroughly as it did just a couple of months ago.

However, the coefficients for consecutive weeks do not exhibit a clear downward trend. For example, with the reference week of 37th, the coefficients representing 40th and 42nd weeks of observation shows that activity for crowdfunding projects slightly spiked during those time periods. Around those dates there must have been events that catapulted Ukraine back to the headlines of news. Appendix E shows that the query “Ukraine" in Google-search spiked around that time proving our assumption. The fueled worldwide interest may be mainly explained by two events. The first marks a beginning of a series of bloody packages which were delivered to Ukrainian Embassies around the world, which commenced by a blast at the Ukrainian Embassy in Madrid (Picheta et al., 2022). Two weeks later, President Zelensky had left Kyiv for the first time since the war started, heading to the US, where he was vowing to save Ukraine standing on the

Dies of House of Chamber. This event cemented the US unwavering support of Ukraine and Zelensky's personal ties with President Biden. It is reasonable to assume that these events could be a reason for slight activity increase for funding of projects in those time periods.

Table 7. *Results from the OLS Regressions 1 and 2*

	Dependent variable:	
	ln_amount	***Overfunding***
I. Tools supporting credibility		
docs_bin	-0.4358 *t = -1.2398*	-0.041 *t = -0.4632*
photo_bin	0.0901 *t = 0.1926*	0.2212 *t = 1.8753**
ln_seconds	0.002 *t = 0.0402*	0.0009 *t = 0.0683*
photo_related_bin	-0.1199 *t = -0.4759*	-0.0498 *t = -0.7841*
ln_updates	0.3535 *t = 3.2122****	0.0865 *t = 3.1184****
log(words)	0.2244 *t = 1.3573*	0.0192 *t = 0.4606*
ln_websites	-0.2043 *t = -0.8710*	-0.0579 *t = -0.9785*
II. Fundraiser's characteristics		
ukr_exp	0.9975 *t = 3.2836****	0.2525 *t = 3.2966****
nation_0	-0.1161 *t = -0.0756*	-0.0426 *t = -0.1100*
nation_anglo	0.2361 *t = 0.7900*	0.0827 *t = 1.0971*
nation_east	1.2689 *t = 2.2850***	0.1619 *t = 1.1564*

nation_int_org	0.3755 *t = 0.8572*	0.0993 *t = 0.8991*
nation_west	0.4039 *t = 1.4068*	0.1225 *t = 1.6915**
III. Project's characteristics		
humanitarian_bin	0.0364 *t = 0.1099*	0.0576 *t = 0.6886*
is_hundreds	0.8467 *t = 2.7629****	0.2261 *t = 2.9257****
IV. Control variables		
ln_days	0.0616 *t = 0.9499*	0.0105 *t = 0.6436*
size_medium	-1.5416 *t = -5.8473****	0.0518 *t = 0.7793*
size_small	-2.3544 *t = -8.7570****	0.2237 *t = 3.2993****
week_38	-0.466 *t = -0.8788*	0.0011 *t = 0.0085*
week_39	-1.164 *t = -1.2078*	-0.3117 *t = -1.2827*
week_40	-0.7275 *t = -1.6643**	-0.021 *t = -0.1909*
week_41	-1.418 *t = -2.9145****	-0.1695 *t = -1.3816*
week_42	-1.2833 *t = -2.5432***	-0.0845 *t = -0.6644*
week_48	-0.8339 *t = -1.5225*	0.0384 *t = 0.2782*
Constant	7.7872 *t = 7.1763****	-0.2511 *t = -0.9177*
Observations	211	211
R2	0.5402	0.2861

Adjusted R2	0.4809	0.1939
Residual Std. Error (df = 186)	1.4051	0.3543
F Statistic (df = 24; 186)	9.1060***	3.1054***
Note:		*p<0.1; **p<0.05; ***p<0.01

Source: created by authors using R software

6.2.2 Overfunding

In the complementary regression we use *Overfunding* as a dependent variable with the same set of regressors as in the previous section (Table 7).

The results are consistent with the conclusions drawn from the previous regression. The variable *ln_updates* remains positive and significant, as well as dummy variable *ukr_exp* denoting previous experience of projects concerning Ukraine, and variable *is_hundreds* capturing potential psychological biases in the donor's behaviour. The mere presence of any photos attached – *photo_bin* – exhibit weak significance at 10% level and indicates that the availability of photo material brings the target closer by 20%.

The positive significance of the *nation_west* variable on the overfunding (raised amount/target amount) suggests that campaigns taking place in Western Europe tend to exceed their fundraising goals to a greater extent than similar campaigns taking place in other regions. The projects taking place in Western Europe may benefit from a greater degree of wealth or disposable income among potential donors. This can make them more likely to be able to donate larger amounts, which can in turn lead to greater levels of overfunding.

Control variables for *size* now show different results – smaller projects are more likely to get larger funding compared to their target amount. However, this may be a direct result of the chosen dependent variable – smaller projects by construction are closer to their funding target compared to the larger ones. Control variables for *weeks* lost their significance.

6.2.3. Amount collected per humanitarian category

This section is devoted to exploring whether and which category of humanitarian campaigns is associated significantly with the higher or lower amount of funding raised. Hence, *ln_amount* is a dependent variable used in the regressions, and the sample as in the previous analysis includes 211 campaigns.

We document that the variable *ln_updates* is significant at 1% level. *Ukr_exp also* appears to be positively and significantly associated with the amount raised when including different types of humanitarian campaigns. Noteworthy, its significance increased since the previous models. Same logic applies to *nationality* categorical variable, with projects carried out in countries of Eastern Europe attracting more funds compared to projects with the same set of characteristics somewhere else.

The *humanitarian_category* variable features coefficients that indicate the percentage increase in funding amount for humanitarian projects with different aims compared to military projects, holding all else constant. As it is visible from the Table 8, initiatives related to mental help are less supported in terms of finance, which is reflected in negative and statistically significant coefficient. Campaigns created to support individual families are, on the contrary, more actively supported by donors. The control variables in the regression #3 remain unchanged, with larger projects tending to attract higher amounts of funds, and a sign of decreasing momentum since the onset of the war.

Table 8. *Results from the OLS Regressions 3 and 4*

	Dependent variable:	
	ln_amount (w/ humanitarian categories)	***ln_amount (w/military categories)***
I. Tools supporting credibility		
docs_bin	-0.2919	-0.6497
	t = -0.8124	*t = -1.8599**
photo_bin	-0.0103	0.1557
	t = -0.0217	*t = 0.3409*
ln_seconds	0.025	-0.0086
	t = 0.4671	*t = -0.1749*
photo_related_bin	-0.2041	-0.1576
	t = -0.8064	*t = -0.6290*
ln_updates	0.3198	0.3823
	*t = 2.9065****	*t = 3.5021****
log(words)	0.1983	0.1917
	t = 1.1874	*t = 1.1815*

ln_websites	-0.3214 *t = -1.2938*	-0.2097 *t = -0.9065*
II. Fundraiser's characteristics		
ukr_exp	1.1852 *t = 3.8698***	0.7682 *t = 2.4554***
nation_0	0.4288 *t = 0.2538*	0.0219 *t = 0.0146*
nation_anglo	0.162 *t = 0.5383*	0.3655 *t = 1.2346*
nation_east	1.3303 *t = 2.3708***	1.5042 *t = 2.5929***
nation_int_org	0.1866 *t = 0.4167*	0.3412 *t = 0.7984*
nation_west	0.4489 *t = 1.5138*	0.4499 *t = 1.5933*
III. Project's characteristics		
humanitarian_categoryEducation	-1.4614 *t = -1.5647*	
humanitarian_categoryEnergy	0.3804 *t = 0.8251*	
humanitarian_categoryEvacuation of citizens	0.6931 *t = 0.5661*	
humanitarian_categoryGeneral	-0.1015 *t = -0.1998*	
humanitarian_categoryHelp for animals	-0.2924 *t = -0.4374*	
humanitarian_categoryHelp for children	-0.8356 *t = -1.5605*	
humanitarian_categoryIndividual family	0.7423 *t = 1.6761**	

humanitarian_categoryMedical help	0.0557 *t = 0.1089*	
humanitarian_categoryMental help	-2.0459 *t = -2.2521***	
humanitarian_categoryRebuilding infrastracture	0.4855 *t = 0.5546*	
humanitarian_categoryRefugees	0.1356 *t = 0.2619*	
humanitarian_categorySupplies to citizens	-0.2807 *t = -0.6847*	
humanitarian_categorySupport for media	1.1849 *t = 1.4342*	
military_categoryClothes for soldiers		-1.011 *t = -1.1581*
military_categoryDrones		-0.8973 *t = -1.5866*
military_categoryEquipment fot troops		-0.3274 *t = -0.6991*
military_categoryGeneral		-1.459 *t = -2.4548***
military_categoryMedicine for troops		1.081 *t = 2.0560***
military_categoryTraining for soldiers		-1.0364 *t = -0.9329*
military_categoryVehicles for troops		0.3327 *t = 0.2336*
military_categoryWeapons for civilians		0.9911 *t = 1.3540*
is_hundreds	0.3843	0.7103

	t = 1.1349	*t = 2.3556***
IV. Control variables		
ln_days	0.0908 *t = 1.3396*	0.0714 *t = 1.1107*
size_medium	-1.5161 *t = -5.6271****	-1.6253 *t = -6.1255****
size_small	-2.3311 *t = -8.5062****	-2.3988 *t = -8.9496****
week_38	-1.0091 *t = -1.7798**	-0.4029 *t = -0.7781*
week_39	-1.3843 *t = -1.3408*	-1.1606 *t = -1.2338*
week_40	-1.1501 *t = -2.4364***	-0.7818 *t = -1.8173**
week_41	-1.5872 *t = -3.0304****	-1.3698 *t = -2.8576****
week_42	-1.4775 *t = -2.6502****	-1.296 *t = -2.5832***
week_48	-1.3065 *t = -2.2477***	-0.217 *t = -0.3812*
Constant	8.6128 *t = 7.6446****	8.1056 *t = 7.7241****
Observations	211	211
R2	0.59	0.5814
Adjusted R2	0.5051	0.5089
Residual Std. Error (df = 186)	1.3719 (df = 174)	1.3666 (df = 179)
F Statistic (df = 24; 186)	6.9541*** (df = 36; 174)	8.0206*** (df = 31; 179)
Note:		*p<0.1; **p<0.05; ***p<0.01

Source: created by authors using R software

6.2.4. Amount collected per military category

For regression 4, the amount of funds raised (*ln_amount*) is regressed on each category of military campaigns along with the same control variables of *ln_days*, *size*, and *week* (effects for them are like ones from regression 3).

The regression output is presented in Table 8. In this regression, *ln_updates* is significant along with *ukr_exp, nation_east, and is_hundreds* as in the previous findings.

Among military campaigns, the category "Medicine for troops" is positively and significantly associated with funding raised. A campaign of this type collects roughly 108% more funding compared to a project with the same characteristics of a humanitarian category. Supplying military groups with medical help might still be reckoned the most "humanistic" type in this list of categories of military projects. Those are more likely to attract more funds because of the donor's willingness not to support the violence. This finding partially supports the conclusions drawn by Tomz and Weeks (2019) that donors are reluctant to support military actions. However, this difference may be explained by higher target sums needed to complete campaigns serving military purposes. Meanwhile, coefficients for the projects without any specific aim (labeled as general) are negative and statistically different from zero. It is possible that the category may not be as well-defined or as specific as other humanitarian and military projects. This can make it harder for potential donors or investors to understand the goals or impact of the project and may make them less likely to contribute.

6.3. Robustness check

The first part of the robustness check involved running Regressions 1 and 2, including the categorical variable *Platform,* denoting each platform out of those 7 ones described in the Section 4.1. The results (Appendix F) showed that variables *ln_updates* remained significant in both robustness checks. However, variable *is*_hundreds that is designed to capture behavioral effects was found to be insignificant, contrary to the initial analysis. The *photo_bin* variable remained weakly significant for the regression with overfunding variable in the robustness check.

According to the categorical variables for different sizes of the campaigns, smaller projects, indeed, tend to collect smaller number of funds. However, they are more likely to collect their target funding rate according to the overfunding robustness check. Categorical variables for weeks are also significant and demonstrate somewhat of a decreasing trend with periodical spikes

for certain weeks that may be caused by specific high-profile events related to Russo-Ukrainian war. Robustness check highlights the potential instability of the results for the categorical variable denoting launcher's origin as well as previous Ukrainian experience.

Effects coming from *Platforms* are significant in some cases as well. Since we have chosen the amount of funding as our dependent variable for the main regression, we will interpret the coefficients for that regression. The results of the respective coefficients for platforms represent the difference in the amount of funds collected compared to campaigns with the very same characteristics being published on *Biggggidea*. Similar campaigns posted on PeoplesProject tend to raise larger funds by 337%. Meantime, projects on *WeaponstoUkraine* collect by 502% higher amount of money compared to the analogical projects on *Biggggidea*. For GoFundMe and Crowdfunder respective coefficient is 1.6609 and 1.3685, so projects launched on these platforms are by 166% and 137% more successful in terms of the raised amount of money.

Apparently, the fact that platforms that support military campaigns (*PeoplesProject* and *WeaponstoUkraine*) have the highest number of funds raised compared to the projects with similar characteristics on other platforms contradicts our initial hypothesis that humanitarian projects are prone to be financed better than the military ones. That may be explained by substantial preparation for military campaigns[6], and quite often direct involvement of the local government, so that campaigns and its organizers are perceived as more trustworthy. In addition to this, military campaigns are targeting larger sums because military equipment is very expensive.

Control variable for the *duration* of the project is significant in case of the *ln_amount* regression.

The second part of robustness check includes paired simple t-tests with *success_bin* as a defining variable that can be found in the Appendix F. The variables for which these tests were run are the following:

- binary variable indicating whether the launcher of the campaign has previous experience with Ukrainian projects launched to support the country during the war;
- target amount;

[6]By saying substantial preparation, we imply that usually military campaigns are launched by professionals with substantial funding possibilities & network, since ordinary people with no previous experience and lack of competence will rarely try to launch a crowdfunding project to raise funds for costly military equipment.

- amount raised;
- binary for presence of photos;
- binary for presence of photos;
- number of updates;
- binary variable indicating whether it is a humanitarian campaign.

According to the results, we can reject the null hypothesis that states that the true mean difference between successful and failed projects for the following set of variables is equal to 0:

- Number of photographs attached. This type of visual material was more often available for the projects that reached or exceeded the target amount. This conclusion corresponds to our first hypothesis.
- Binary variable indicating whether the campaign is military or humanitarian. Military projects constitute a bigger part of the sample in the group with successful campaigns, which is in line with our quantitative results for hypothesis 3.
- Previous experience related to the creation of war-oriented campaigns for the support of Ukraine. Successful projects more often had launchers that possessed this kind of experience.

6.4. E-mail based survey with volunteers and campaign launchers

The surveys with selected respondents that have previous experience as fundraisers for Ukraine confirm the results of the quantitative research as well as provide additional insights into the role of updates and photos as a tool for supporting credibility along with difference in humanitarian and military projects.

Firstly, the experts highlighted the importance of the crowdfunding initiatives in the scope of the ongoing war in Ukraine. Unfortunately, in a similar kind of conflicts government does not manage to help everyone who is in need due to the lack of time as well as focus on a bigger project. So, volunteers and crowdfunding are crucial for the support of the civil population and military forces as well. That stresses the importance of the donation-based projects employed to tackle the consequences of the war as well as the war itself. A new piece of information that was received from interviewees is the fact that the importance of social media is also increasing for the purpose of collection of funds for a similar kind of humanitarian projects (military projects are

mainly executed with the help of crowdfunding platforms). According to a German Professor holding a chair of charity funds "*Ukrainehilfe Breitscheid St. Laurentius Gemeinschaft e.V*", Facebook crowdfunding campaigns are most popular among Germans. Likewise, volunteer from Ukrainian-based organization "*All Ukraine*" pointed out on the same tendencies among Ukrainian population, as well as the fact that it is easier to build trustful relationships with donors with the help of active social media activity on the charity page and create an effect of branding, so that with time established reputation of the organization can contribute to higher trustworthiness of the organization.

Returning to our initial hypotheses, qualitative research claims the importance of photo materials and updates for the success of the crowdfunding initiative. As one of the interviewees said: "Camera is a best friend of the volunteer". Instead of writing a long paragraph describing the results of the project, it is easier to just post photos so that donors can see for themselves on what were the donated funds spent. Updates featuring checks and video materials, capturing grateful people that were provided support with the help of gathered sums of money are, indeed, used to establish trust among donors and initiators to increase successfulness of the campaign. Previous experience in crowdfunding, especially related somehow to Ukraine, according to Polish volunteer, helps you understand what to add to the description and how to execute a new fundraiser. The projects of Ukrainians and foreigners according to the same Polish volunteer differ because they are aimed at different audiences – that's why, to her mind, a project initiated by Ukrainians is more popular and is quicker to reach the target – they are just more aware about what their compatriots necessitate.

As for the difference in activity and willingness of donors to financially support military and humanitarian projects, there are different tendencies for foreign and Ukrainian audience. For the Western Europe audience, this willingness remained low since the beginning of the conflict in 2014. Military projects aimed at providing any kind of humanitarian assistance for soldiers (e.g., rehabilitation, family support, medicine) are much more frequent than ones devoted to raising funds for military equipment. For Eastern Europe audience, military crowdfunding is also less popular compared to local level of the support to refugees as well as civil population residing in Ukraine since government is taking active steps to support Ukrainian Armed Forces. Clearly, for Ukrainians the situation is different, and we may argue here for a higher popularity of military

crowdfunding since Ukrainian people want to win the war as soon as possible and contributing financially to the military is the fastest way to do so according to their opinion.

Regarding the time passage and its effect on crowdfunding activity for Ukraine, tendencies for lower interest and desire to support similar initiatives are present for both Ukrainians and foreigners. People are getting used to the fact that the war is happening in Ukraine and constant reminders are needed to stimulate them to donate. One of such reminders are high-profile events related to the Russo-Ukrainian war that are published in news- they clearly galvanize people's empathy and readiness to financially contribute for the sake of Ukrainian victory and freedom and well-being of its people.

Finally, taking a step back from the stated hypotheses, we also want to emphasize the importance of textual description expressed by interviewed volunteers. Some of them mentioned that it is possible to induce people to donate more with the help of emotional request for help. It is quite effective to wake up feelings of guilt in the target audience, reminding them that while they are in safety and comfort, Ukrainians are being constantly attacked and forced to live in awful and dangerous conditions, while military forces of Ukraine are doing their best to fight with the enemy that is a couple times bigger for common democratic values.

6.5. Limitations of the study

Our main limitation is created by manual collection of data that might make the results biased towards our sample. Moreover, crowdfunding platforms shall not be considered the only way to raise funds: social networks, such as Facebook and LinkedIn should be also taken into account as many post their projects specifically at those platforms. Our idea with categories of humanitarian or military campaigns may be developed further in order to capture more effects and to make results more reliable with higher number of observations.

Establishing causality is yet another potential limitation of the study. While the research may uncover associations between independent variables and crowdfunding campaign success, it may be difficult to establish causality given the nature of observational data. There may be other factors contributing to the success of crowdfunding campaigns that are not included in the dataset given the lack of previous literature on the donation-based crowdfunding and crowdfunding for the war purposes.

Finally, email surveys are a popular qualitative analysis method, but they have both advantages and drawbacks. Dommeyer and Moriarty (2020) suggest that email surveys often have low response rates since some people may not appreciate receiving unsolicited emails. In addition, compared to traditional interviews, email surveys are unable to utilize automatic techniques such as reordering and asking follow-up questions, which can improve the quality of the survey (Seale, 2012).

6.6. Suggestions for further research

Although the Russian invasion of Ukraine currently dominates the news, there is a significant lack of research examining the wide-ranging consequences of war in all areas. Crowdfunding has emerged during this armed conflict as a crucial method for raising funds and providing both military and humanitarian support in the war context.

Further quantitative research could be conducted using larger datasets to increase the number of observations and achieve more reliable coefficients for independent variables, especially categorical ones where sometimes we lacked observations. This could be also achieved through employing advanced econometric techniques to substitute missing values in our dataset. Additionally, large samples could be introduced using advanced data scraping techniques. In the context of rapidly evolving events of Russo-Ukrainian war, automatic data compiling might provide additional insight into donors' willingness to contribute in different settings as well as would eliminate necessity to use categorical variables for weeks capturing the consequences of the dataset being manually collected throughout the period of 5 consecutive weeks (e.g., news, platforms, individual biases).

Linguistic analysis of how certain words affect the campaign's financing outcome may also be conducted on a deeper level. Words that denote different emotions could be categorized to determine which feelings elicit the greatest sympathy from donors resulting in the highest donations being sent. That would also suggest how to convince and encourage people to help (e.g., use direct urge/accusation of being in safety while Ukrainians remain in shelters and frontlines in the descriptions of campaigns, call for pity, try to cause anger because of the unfair and violent actions from Russian side).

Another metrics of the campaign's success shall be also considered. Duration of campaign reaching its target may be one of them, denoting the most successful projects as such that raise

targeted amount of funds faster (speed should be a relevant indicator in the context of war since the urgency of help is extremely important). Executing the project after it has reached the target might amplify the research with another side of investigation of crowdfunding projects. Specifically, how execution of humanitarian and military projects might differ after the required sum of money has been collected (e.g., duration, risks associated with fraud).

7. Conclusions and recommendations

Hypotheses 1A and 1B were partially supported by the analysis. The presence of photos was found to be a significant predictor of success in the regression analysis, but the presence of videos was important only in the qualitative part. This suggests that incorporating visual elements into crowdfunding campaigns may enhance their likelihood of success, particularly through the use of photos.

Hypothesis 2 was supported by the analysis. The number of updates was found to be a significant predictor of the amount of funds received, suggesting that frequent communication with backers may enhance crowdfunding campaign success.

Hypothesis 3 was not supported by the analysis. Contrary to expectations, the results suggest that military campaigns may receive more funds than humanitarian campaigns. This may be due to the perception of higher trustworthiness associated with military campaigns since they are launched mostly by experienced professionals on designated platforms and the costs of military equipment that are also high, so the projects for military purposes are naturally bigger. Our qualitative analysis suggests that crowdfunding for the Armed Forces of Ukraine is not as popular as the one targeting humanitarian needs of civil population, especially among foreigners. This is also visible from our dataset- military projects constitute only 25% of it, but the projects are bigger compared to humanitarian initiatives.

Hypothesis 4 was partially supported by the analysis. The results suggest that the country of the launcher's origin may have an impact on the success of crowdfunding campaigns, but this effect was not consistent across different success measures. Additionally, the robustness checks highlighted potential instability in the results related to this hypothesis.

Hypothesis 5 was partially supported by the analysis. The evidence from initial regressions suggests a gradual decrease in donations over time, with some periodic spikes related to specific high-profile events related to the Russo-Ukrainian war. Interviewees also highlighted

increasing difficulty to raise donations with the passage of time due to the loss of interest and willingness to contribute from both foreign and Ukrainian audience. However, the robustness analysis did not provide conclusive evidence to support this hypothesis.

Overall, the research provided some support for hypotheses related to the importance of visual elements and communication frequency in crowdfunding campaign success, but contradicted expectations related to the success of humanitarian versus military campaigns. The role of the chosen platform was proved to be significant in the robustness checks.

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9. Appendices

Appendix A. Text analysis

We run regressions with two response variables *ln_amount* and *Overfunding* with 22 different word categories and the set of control variables. The number of words per category was divided by the total number of words in the description, that is denoted by the variable *Words*. This variable is calculated for each campaign and ranges from 0 to 1.

Some of the predictor variables have significant coefficients, such as *Words_Kyiv* and *Words_refugee*, which have positive and negative coefficients respectively, indicating that campaigns that mention Kyiv in their descriptions tend to raise more funds, while campaigns that mention refugees tend to raise less. However, many of the predictor variables are not significant, as their p-values are greater than 0.05. The presence of the words associated with military crowdfunding ("troops", drone", "frontline") demonstrated negative relationship with the raised sum of money in case with overfunding being used as a dependent variable. However, many of the predictor variables are not significant, as their p-values are greater than 0.05.

Besides regression, we come up with ten the most frequent words for both successful (*success_bin* = 1) projects and ones that did not manage to reach the target sum (*success_bin* = 0).

Table A.1. *OLS Regression with word-categories and control variables*

	Dependent variable:	
	ln_amount	***Overfunding***
I. Words		
Words_war	-31.0987	-7.1339
	*t = -2.0262***	*t = -1.8148**
Words_supplies/equipment	-14.3211	-3.1414
	t = -0.9277	*t = -0.7945*
Words_children/family/kid	2.409	-0.4015

	t = 0.2457	*t = -0.1599*
Words_need	-6.4486 *t = -0.3606*	-1.7165 *t = -0.3747*
Words_medical	-3.8979 *t = -0.2358*	-1.772 *t = -0.4186*
Words_funds	10.1769 *t = 0.3413*	0.4934 *t = 0.0646*
Words_Kyiv	49.5173 *t = 2.0383***	7.0856 *t = 1.1388*
Words_winter	22.3255 *t = 0.9211*	8.6503 *t = 1.3936*
Words_weapon	25.9377 *t = 0.1744*	-3.5603 *t = -0.0935*
Words_troop	-90.7149 *t = -1.9598**	-19.7321 *t = -1.6645**
Words_frontline	-89.7545 *t = -1.7932**	-28.575 *t = -2.2292***
Words_animal	43.2953 *t = 1.9570**	6.6887 *t = 1.1805*
Words_pet	-18.9749 *t = -0.9322*	-3.2777 *t = -0.6288*

Words_energy	-98.482 *t = -0.8784*	-18.8186 *t = -0.6554*
Words_drone	-9.3999 *t = -0.6395*	-8.9592 *t = -2.3800***
Words_mental	-12.972 *t = -0.2258*	12.0237 *t = 0.8173*
Words_friend	-43.5837 *t = -1.2853*	-11.7262 *t = -1.3503*
Words_kind	-48.8941 *t = -0.9295*	-1.735 *t = -0.1288*
Words_evacuation	50.965 *t = 0.8372*	-10.0194 *t = -0.6426*
Words_humanitarian	19.0196 *t = 0.5921*	1.4304 *t = 0.1739*
Words_infrastructure/rebuilding	15.2812 *t = 0.2297*	-5.5883 *t = -0.3280*
Words_refugee	-50.8949 *t = -2.2007***	-10.9674 *t = -1.8517**
II. Control variable		
size_medium	-1.3817 *t = -5.0452****	0.0734 *t = 1.0463*
size_small	-2.4086 *t = -8.6580****	0.212 *t = 2.9759****

week_38	-0.324	-0.0447
	t = -0.5695	*t = -0.3071*
week_39	-1.4919	-0.4459
	t = -1.5397	*t = -1.7970**
week_40	-1.3477	-0.1887
	*t = -3.3224****	*t = -1.8164**
week_41	-2.004	-0.3265
	*t = -4.6904****	*t = -2.9842****
week_42	-1.761	-0.1969
	*t = -3.8605****	*t = -1.6855**
week_48	-0.2577	0.1935
	t = -0.5450	*t = 1.5979*
Constant	11.2939	0.6823
	*t = 25.9388****	*t = 6.1185****
Observations	211	211
R2	0.5386	0.261
Adjusted R2	0.4618	0.1378
Residual Std. Error (df = 186)	1.4308	0.3664
F Statistic (df = 24; 186)	7.0052***	2.1186***
Note:		*p<0.1; **p<0.05; ***p<0.01

Source: created by authors using R software

Table A.2. *Top-10 frequent words with the number of occurrences among both successful and unsuccessful campaigns*

Word	**success_bin = 1, count**
ukraine	69
help	34
people	30
military	30
need	30
sleeping	21
ukrainian	20
support	17
already	16

	success_bin = 0, count
ukraine	586
help	289
people	203
children	182
support	162
need	148
ukrainian	146
medical	134
families	111

Source: created by authors using Python software

Appendix B. Correlation matrix

Table B.1. *Correlation coefficients between determinants*

	platform_categ	Par_amount_of_funding	Overfunding	is_hundreds	docs_bin	photo_bin	photo_related_bin	seconds	humanitarian_bin	docs	websites	ukr_exp	updates	days	words	weeks	nation_categ	hum_category	mil_category	size_categ
platform_categ	1.00																			
Par_amount_of_funding	0.16	1.00																		
Overfunding	0.23	0.20	1.00																	
is_hundreds	0.12	-0.04	0.11	1.00																
docs_bin	0.08	0.05	0.09	-0.21	1.00															
photo_bin	-0.01	0.04	0.15	0.04	0.05	1.00														
photo_related_bin	-0.11	-0.12	-0.05	0.08	-0.04	0.28	1.00													
seconds	-0.15	-0.02	-0.04	0.01	-0.04	-0.03	0.14	1.00												
humanitarian_bin	-0.08	-0.07	-0.05	-0.16	-0.19	-0.12	0.06	0.08	1.00											
docs	0.12	0.22	0.11	0.01	0.27	0.03	0.08	-0.03	-0.16	1.00										
websites	-0.36	0.17	-0.11	-0.30	0.26	0.02	0.09	0.10	0.03	0.00	1.00									
ukr_exp	0.27	0.20	0.24	-0.41	0.36	-0.05	-0.18	-0.06	-0.15	0.16	0.13	1.00								
updates	0.11	0.25	0.17	-0.05	0.29	0.05	0.13	0.05	-0.14	0.84	0.04	0.22	1.00							
days	0.10	0.16	0.19	-0.15	0.43	0.07	0.02	0.02	-0.21	0.37	0.12	0.28	0.51	1.00						
words	-0.01	-0.02	0.08	0.10	0.06	0.11	0.25	0.04	0.10	0.02	0.15	-0.09	0.02	0.09	1.00					
weeks	0.34	0.04	0.15	0.28	0.12	0.16	0.09	-0.01	-0.68	0.20	-0.14	0.14	0.19	0.29	-0.02	1.00				
nation_categ	-0.18	-0.03	-0.04	-0.09	0.11	0.05	0.01	0.01	0.00	0.04	0.14	0.07	0.02	0.07	-0.03	0.06	1.00			
hum_category	-0.10	0.02	-0.09	-0.18	-0.14	0.00	0.10	0.07	0.72	-0.12	0.13	-0.16	-0.09	-0.10	0.05	-0.44	-0.03	1.00		
mil_category	-0.02	0.01	0.08	0.17	0.19	0.09	0.01	-0.06	-0.88	0.11	-0.01	0.11	0.09	0.25	-0.05	0.50	-0.02	-0.63	1.00	
size_categ	-0.05	-0.30	0.16	0.29	-0.20	-0.03	0.09	0.00	0.02	-0.11	-0.23	-0.22	-0.17	-0.16	0.08	0.10	-0.09	-0.07	-0.04	1.00

Source: created by authors using R software

Appendix C. Additional descriptive statistics of the data

Table C.1. *Summary statistics for dependent variables for two groups of projects (successful and unsuccessful ones) per platform*

Platform	success_bin	mean_target	sd_targt	mean_raised	sd_raised	mean_photos	mean_videos	mean_updates	sd_updates	prop_humanitarian	prop_ukr_exp
Biggggidea	0	28,006	31,648	3,474	5,721	1.00	1.00	7.30	15.20	0.30	0.00
Biggggidea	1	10,695	6,344	11,069	6,664	1.00	1.00	1.00	0.00	0.00	0.00
Crowdfund.	0	100,956	309,664	7,576	18,939	0.92	0.39	0.39	0.87	1.00	0.00
Crowdfund.	1	3,010	2,281	4,820	4,129	1.00	0.00	0.33	0.58	1.00	0.00
Fundly	0	47,746	49,946	23,957	46,765	0.92	0.17	6.83	17.60	0.42	0.08
Fundly	1	1,865	NA	2,430	NA	1.00	1.00	0.00	NA	1.00	0.00
GlobalGiv.	0	116,551	182,667	42,870	88,031	0.91	0.17	4.83	7.39	0.98	0.62
GlobalGiv.	1	14,759	NA	14,759	NA	1.00	0.00	4.00	NA	1.00	0.00
GoFundMe	0	49,969	179,794	23,938	115,104	0.91	0.26	2.16	5.50	0.82	0.10
GoFundMe	1	19,479	47,253	20,468	48,154	1.00	0.29	13.10	37.40	0.79	0.29
PeoplesProj.	0	129,623	142,962	12,795	131,573	1.00	0.11	63.70	117.00	0.00	1.00

PeoplesProj.	1	14,321	16,441	14,670	16,408	1.00	0.29	10.40	21.30	0.14	1.00
WeaponstoU	0	166,675	NA	64,219	NA	1.00	0.00	0.00	NA	0.00	1.00
WeaponstoUkraine	1	388,667	632,379	388,667	632,379	1.00	0.00	0.00	0.00	0.00	0.67

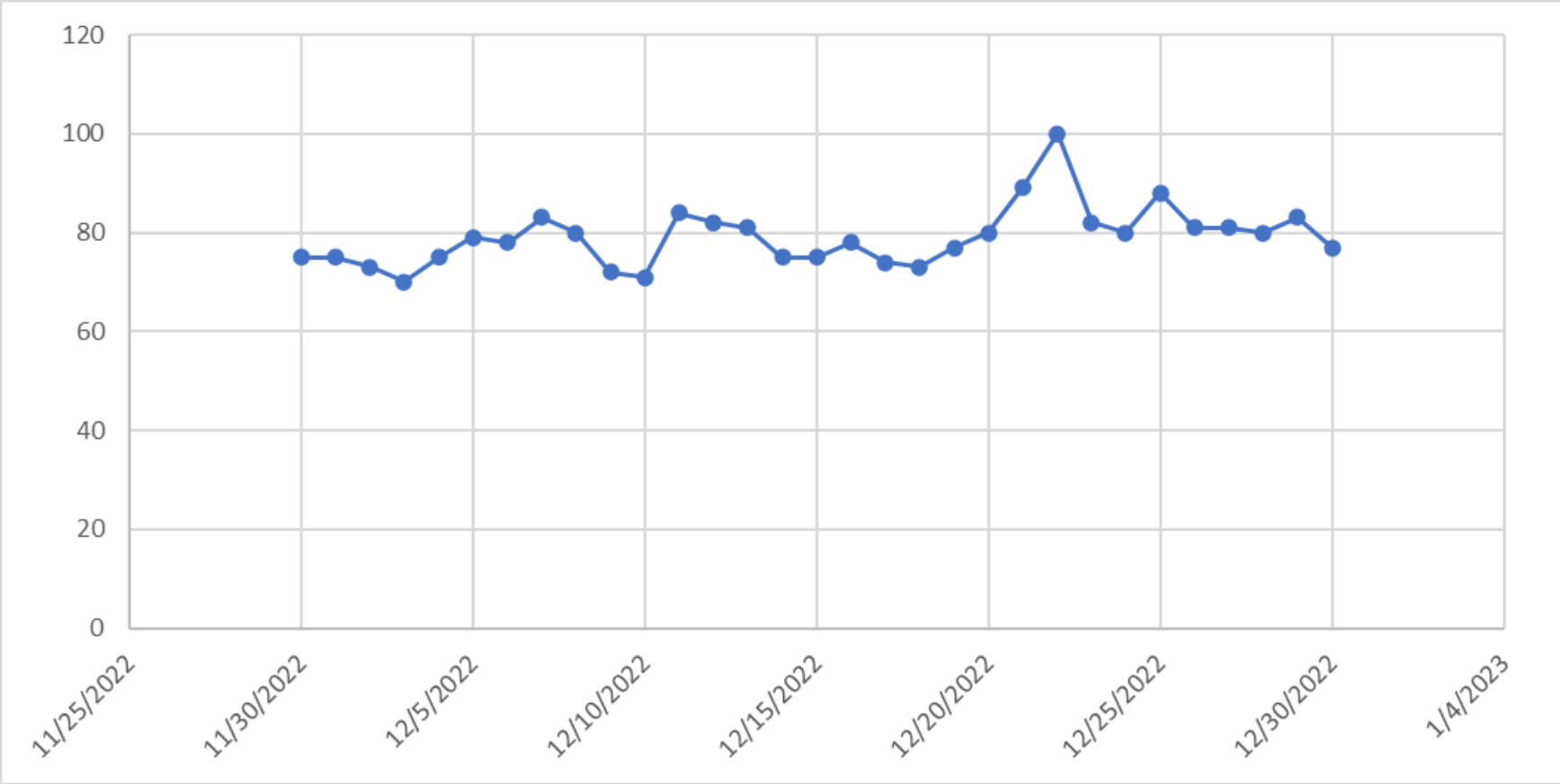
Appendix D. Variance Inflation Factors for OLS Regressions

Table D.1. VIF values for Models 1, 2 and Robustness check

Variable	OLS 1 & OLS 2	OLS 3	OLS 4	OLS Robustness
docs_bin	1.47	1.61	1.54	1.69
photo_bin	1.45	1.57	1.46	1.46
ln_seconds	1.41	1.69	1.43	1.52
photo_related_bin	1.69	1.79	1.77	1.74
ln_updates	1.60	1.68	1.66	1.65
log(words)	1.23	1.32	1.26	1.33
ln_websites	1.61	1.90	1.66	1.91
ukr_exp	1.99	2.12	2.23	2.43
factor(nationality)	1.22	1.39	1.27	1.48
humanitarian_bin	2.29	n.d.	n.d.	3.11
humanitarian_category	n.d.	1.36	n.d.	n.d.
military_category	n.d.	n.d.	1.26	n.d.
is_hundreds	1.71	2.19	1.75	3.33
ln_days	1.45	1.67	1.51	1.61
factor(size)	1.22	1.35	1.29	1.33
factor(weeks)	1.49	1.75	1.57	1.91
factor(platform)	n.d.	n.d.	n.d.	2.45
Mean	1.56	1.67	1.55	1.93

Appendix E. Index of Googling “Ukraine” within December 2022

Table E1. *Interest Over Time measure by query "Ukraine", worldwide*



Source: Google Trends

Appendix F. Robustness check

Table F1. *Robustness check by including the "Platform" variable*

	Dependent variable:	
	ln_amount	***Overfunding***
I. Tools supporting credibility		
docs_bin	-0.5586	-0.0847
	t = -1.5414	*t = -0.9199*
photo_bin	0.1057	0.2148
	t = 0.2338	*t = 1.8704**
ln_seconds	0.0165	-0.0013
	t = 0.3281	*t = -0.1053*
photo_related_bin	0.0186	-0.0175
	t = 0.0755	*t = -0.2791*
ln_updates	0.3024	0.0777
	*t = 2.8085****	*t = 2.8400****
log(words)	0.1296	-0.011
	t = 0.7832	*t = -0.2627*
ln_websites	0.1108	0.0021
	t = 0.4498	*t = 0.0328*
II. Fundraiser's characteristics		
ukr_exp	0.4905	0.1305
	t = 1.5135	*t = 1.5848*

nation_0	-0.4048 *t = -0.2729*	-0.0949 *t = -0.2519*
nation_anglo	0.0331 *t = 0.1098*	0.0469 *t = 0.6128*
nation_east	-0.0826 *t = -0.1087*	-0.0668 *t = -0.3461*
nation_int_org	0.0428 *t = 0.0981*	0.0542 *t = 0.4889*
nation_west	0.3066 *t = 1.0435*	0.0954 *t = 1.2786*
III. Project's characteristics		
humanitarian_bin	-0.3313 *t = -0.8888*	0.0307 *t = 0.3248*
is_hundreds	0.1875 *t = 0.4548*	0.0684 *t = 0.6530*
IV. Control variables		
ln_days	0.1155 *t = 1.7544**	0.0168 *t = 1.0066*
PlatformCrowdfunder	1.3685 t = 1.7405*	0.2611 t = 1.3074
PlatformFundly	1.0408 t = 1.3191	0.2078 t = 1.0371
PlatformGlobalGiving	0.6239	-0.0251

	t = 0.8100	t = -0.1281
PlatformGoFundMe	1.6609 t = 2.5248**	0.197 t = 1.1792
PlatformPeoplesProject	3.3721 t = 3.5265***	0.711 t = 2.9274***
PlatformWeaponstoUkraine	5.0223 t = 3.6476***	0.899 t = 2.5704**
size_medium	-1.5217 t = -5.9561***	0.0597 t = 0.9193
size_small	-2.1397 t = -7.7679***	0.2651 t = 3.7897***
week_38	-0.9694 t = -1.7568*	-0.0932 t = -0.6653
week_39	-2.1114 t = -2.1651**	-0.4974 t = -2.0080**
week_40	-1.563 t = -3.2615***	-0.1905 t = -1.5653
week_41	-2.29 t = -4.2715***	-0.4007 t = -2.9429***
week_42	-1.9453 t = -3.4014***	-0.2359 t = -1.6241

week_48	-3.0553 t = -4.0570***	-0.434 t = -2.2687**
Constant	8.3427 t = 6.3033***	0.0613 t = 0.1822
Observations	211	211
R2	0.5864	0.3483
Adjusted R2	0.5174	0.2396
Residual Std. Error (df = 186)	1.3547	0.3441
F Statistic (df = 24; 186)	8.5059***	3.2061***
Note:		*p<0.1; **p<0.05; ***p<0.01

Source: created by authors using R software

Table F2. *Robustness check by running t-tests with success_bin as a defining variable*

Variable	Mean in group 0	Mean in group 1	p-value
Target amount	72,449	51,161	0.584
Par_amount_of_funding	30,705	51,904	0.569
photo_bin	0.92	1	0.000
video_bin	0.27	0.29	0.840
updates	6.32	8.52	0.681
humanitarian_bin	0.77	0.55	0.029
ukr_exp	0.26	0.42	0.095
is_hundreds	0.77	0.87	0.137

Appendix G. Survey questionnaire.

1) In your opinion, where is it more convenient to launch a project - in social networks or on crowdfunding platforms?
2) Is there a difference in the success of projects organized for the purpose of gathering donations for humanitarian and military purposes? (Which of them manages to collect more funds and is there a tendency for people to donate more conservatively for the military needs of Ukraine)?
3) Is it true that over time it becomes more and more difficult to collect money - people tend to forget about the war?
4) What is the best way to communicate information about the project? (photo material/ video material/ text?)
5) What types of humanitarian campaigns are the most successful: aid for children/ support for media centers writing about the war in Ukraine/ evacuation of citizens/ medical aid/ aid to refugees/ support for education during the war/ infrastructure restoration/ humanitarian aid to people in Ukraine/ psychological aid/ assistance to individual families/ energy projects)
6) Did you notice any cognitive biases in people's behavior when they transfer funds for a project? (Are there any certain psychological tricks that will influence people's desire to donate more?)
7) In your opinion, could the following factors influence the outcome and success of a fundraising project: additional photo/video materials, description - number of words, number of updates/documents in the description/number of additional websites in the description, the platform you are running your project on, previous experience in a similar kind of projects.